

PATENT

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ABSTRACT OF THE DISCLOSURE

Embodiments of the invention generally provide a composition of silicon compounds and methods for using the silicon compounds to deposit a silicon-containing film. The processes employ introducing the silicon compound to a substrate surface and depositing a portion of the silicon compound, the silicon motif, as the silicon-containing film. The ligands are another portion of the silicon compound and are liberated as an *in-situ* etchant. The *in-situ* etchants supports the growth of selective silicon epitaxy. Silicon compounds include SiRX_6 , Si_2RX_6 , Si_2RX_8 , wherein X is independently hydrogen or halogen and R is carbon, silicon or germanium. Silicon compound also include compounds comprising three silicon atoms, fourth atom of carbon, silicon or germanium and atoms of hydrogen or halogen with at least one halogen, as well as, comprising four silicon atoms, fifth atom of carbon, silicon or germanium and atoms of hydrogen or halogen with at least one halogen.